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FINAL REISSUE CLAIMS

CLAIMS

What I claim as my invention is:

1. A collision avoidance system**[,]** **for use involving at least one vehicle, said collision avoidanc system** comprising:

a) **[a plurality of vehicle trigger sensors each]** **at least one trigger sensor** associated with a roadway, **[each said vehicle]** **said at least one** trigger sensor capable of sensing at least one parameter **[of one or more vehicles]**;

b) **[a plurality of vehicle restrictors each]** **at least one vehicle restrictor** associated with said roadway, **[each said]** **said at least one** restrictor comprising a**[n elongate]** member disposed generally transverse to said roadway, each said restrictor capable of being actuated **[to raise or lower relative to said roadway surface]** to impede passage thereover **[of said]** **of the at least one** vehicle**[s]**; and

c) a controller programmed to determine **[the]** **an increased** likelihood of a collision **[between]** **involving** any of **[said]** **the at least one** vehicle**[s]** based on said **[vehicle]** parameter**[s]** received from **or by** said trigger sensor**[s]**, programmed to determine **[which of a selected n or more of said vehicles]** **that the at least one vehicle** should be slowed or stopped **[to avoid said collision]** based on said **[vehicle]** parameter**[s and based on local traffic laws]**, and programmed to determine at least one **[selected]** vehicle restrictor that is being approached by **[said selected]** **the at least one** vehicle, wherein said at least one **[selected]** vehicle restrictor is actuated by communication from said controller to impede the passage of **[said selected]** **the at least one** vehicle **[to avoid said collision]**.

2. The collision avoidance system of claim 1, wherein said at least one **[vehicle]** parameter is selected from the group **[consisting]** **compris d** of vehicle presence, position, direction, or speed.

3. The collision avoidance system of claim 1, wherein said at least one trigger sensor is selected

from the group **[consisting of]** **of t chn l gies capable of detecting vehicle parameters comprising** radar devices, lasers, optical devices, ultrasonic devices, induction loop devices, wireless transmitters and receivers, pressure-responsive switches, **[and]** **or** combinations thereof.

4. The collision avoidance system of claim 1, **[wherein said]** **further comprising** at least one **[trigger sensor comprises an]** environmental sensor to indicate roadway moisture or sight visibility.

5. The collision avoidance system of claim 4, wherein said controller is programmed to determine said **increased** likelihood of said collision further based on roadway surface friction loss due to moisture or sight visibility loss, **[due to moisture]** as communicated to said controller from said environmental sensor.

6. The collision avoidance system of claim 1, wherein said at least one trigger sensor is mounted on a generally vertical post adjacent said roadway or on a generally horizontal arm supported above said roadway.

7. The collision avoidance system of claim 1, further comprising a control that receives said **[vehicle]** parameter comprising the speed of **[said selected]** **the at least one** vehicle and that determines an amount of **[raising or lowering of the selected]** vehicle restrictor **activation** which **[amount]** is selected to be sufficient to slow or stop the **at least one** vehicle **[to avoid said collision]**.

8. The collision avoidance system of claim 1, further comprising a monitoring device associated with said roadway and in **[real time]** communication with emergency law enforcement, medical, **[r]** fire department **or other predetermined** personnel.

9. The collision avoidance system of claim 8, wherein said at least one monitoring device comprises **[a]** **at least one** camera.

10. The collision avoidance system of claim 1, further comprising **[an]** **at l ast one** emergency vehicle pass-through control that deactivates the actuation of **[the]** **said at l ast n** vehicle

restrictor**[s]** in response to a communication from an emergency law enforcement, medical, or fire department vehicle **or oth r pred t rmin d v hicl or person**.

11. The collision avoidance system of claim 1, further comprising:

a) **[a plurality of]** **at least one** pedestrian trigger sensor**[s each]** associated with said roadway, each said pedestrian trigger sensor capable of sensing at least one parameter of one or more pedestrians; **and**

b) **[at least one alarm associated with said roadway to alert operators of said vehicles of an approaching pedestrian to avoid collision; and]**

c) said controller programmed to determine **[the]** **an increased** likelihood of a collision between said pedestrian and **[any of said vehicles, and to select and activate said alarm]** **the at least one vehicle** and to **[select and]** activate said **[selected]** vehicle restrictor **[immediat ly]** in the path of **[said selected]** **the at least one** vehicle.

12. The collision avoidance system of claim 11, wherein said **at least one** pedestrian parameter**[s]** comprise**s** the presence, position, speed, or direction of the sensed pedestrian.

13. The collision avoidance system of claim 11, **[wherein]** **further comprising** at least one alarm associated with said roadway **[alerts said pedestrians of an approaching vehicle to avoid]** **wh rein said at least one alarm provides notification of potential vehicle-to-pedestrian** collision.

14. The collision avoidance system of claim 1, further comprising:

a) **[a plurality of]** **at least one** train trigger sensor**[s each]** associated with said roadway, each said train trigger sensor capable of sensing at least one parameter of one or more trains; **and**

b) **[a plurality of alarms associated with said roadway to alert operators of said vehicles of an approaching train to avoid collision; and]**

c) said controller programmed to determine **[the]** **an increas d** likelihood of a collision between said train and **[any of said vehicles, and to s l ct and activate said alarm]** **th at l ast one**

vehicl and to **[sel ct and]** activate said **[selected]** **at least one** vehicle restrictor **[immediat ly]** in the path of **[said s lected]** **the at least on** vehicle.

15. The collision avoidance system of claim 14, wherein said **at least one** train parameter**[s]** comprise**s** the presence, position, speed, or direction of the sensed train.

16. A method for collision avoidance**[,]** **for use involving at least one vehicle**, comprising **the steps of**:

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a) sensing **at least one** parameter**[s of a plurality of vehicles]**;

b) determining **[the]** **that there is an increased** likelihood of a collision involving **[any of said vehicles]** **the at least one vehicle** based on said **at least one** **[vehicle]** parameter**[s]**;

c) determining **[which of a selected one or more of said vehicles]** **that at least one vehicl** should be slowed or stopped **[to avoid said collision]** based on said **at least one** **[vehicle]** parameter**[s and local traffic laws]**;

d) determining at least one **[selected]** vehicle restrictor**[, of a plurality of vehicle restrictors]** in a roadway, that is being approached by **[said selected]** **the at least one** vehicle based on said **at least one** **[vehicle]** parameter**[s]** and said vehicle restrictor location**[s]**; and

e) actuating said **[selected]** vehicle restrictor to control **[the parameters of]** said **[selected]** vehicle **[to avoid said collision]**.

17. The collision avoidance method of claim 16, wherein said **at least one** **[vehicle]** parameter**[s]** comprises the presence, position, speed, or direction of the **[sensed]** **at least one** vehicle.

18. The collision avoidance method of claim 16, further comprising **the steps of**:

a) sensing **at least one** parameter**[s]** of at least one pedestrian;

b) determining **[the]** **that there is an incr ased** likelihood of a collision between said **at least one** pedestrian and any of **[said]** **th at l ast ne** vehicles **bas d on said at least one paramet r**; and

c) **[actuating at l ast on alarm to alert an operat r of said vehicle of said approaching v hicl to avoid such a collision.]**

d) **actuating at least on v hicle r strictor in a roadway to c ntrol said at least one vehicle to be slowed or stopped to reduce the increased likelihood of a collision with at least ne pedestrian.**

19. The collision avoidance method of claim 18, wherein said **at least one** pedestrian parameter**[s]** comprises the presence, position, speed, or direction of the sensed pedestrian.

20. The collision avoidance method of claim 16, further comprising **the steps of**:

a) sensing **at least one** parameter**[s]** of at least one train;

b) determining **[the] that there is an increased** likelihood of a collision between said **at least on** train and any of **[said] the at least one** vehicles **based on said at least one parameter; and**

c) actuating **at least one** vehicle restrictor**[s]** in a roadway to control **[the parameters of said] the at least one** vehicle to be slowed or stopped to **[avoid said] reduce the increased likelihood of a** collision **with at least one train. [; and]**

d) **[actuating at least one alarm to alert an operator of said vehicle of said approaching train to avoid such a collision.]**

21. The collision avoidance method of claim 20, wherein said **at least one** train parameter**[s]** comprises the presence, position, speed, or direction of the sensed train.

22. The collision avoidance system of claim 1, further comprising a control means to adjust at least one operational parameter, whereby system responses are changed.

23. A collision avoidance system for enforcing local traffic laws or rules for use with a traffic control means that is representative of the local traffic laws or rules, capable of displaying a permissiv or a non-p rmissiv indicia, said syst m f collision avoidanc , c mprising:

a) at least on v hicle r strictor associated with a roadway, said at least one vehicle r strictor comprising a memb r dispos d g nerally transv rs to said roadway, capable of being actuat d to imp d passag th reov r of at least one vehicle; and

b) a controller that determines an increased likelihood of vehicular collision relative to th status of the traffic control means wherein said controller determines that the at least on vehicle should be slowed or stopped and wherein said at least one vehicle restrictor may b actuated by communication from said controller to impede the passage of the at least one vehicle.

24. A method of collision avoidance for enforcing local traffic laws or rules for use with a traffic control means that is representative of the local traffic laws or rules, capable of displaying permissive or non-permissive indicia, said method of collision avoidance comprising the st ps of:

a) determining the permissive status of the traffic control means that is associated with a roadway;

b) determining that at least one vehicle should be slowed or stopped as to reduce the increased likelihood of vehicular collision relative to local traffic laws or rules and status of the traffic control means; and

c) impeding movement of the at least one vehicle associated with the roadway by actuating at least one vehicle restrictor when the status of the traffic control means is not permissive.

25. A method of collision avoidance, comprising the steps of:

a) sensing at least one parameter of at least a first vehicle;

b) sensing at least one parameter of at least a second vehicle;

c) determining that there is an increased likelihood of a collision involving said at least first vehicl and said at least s cond vehicle bas d on said vehicl paramet rs; and

d) det rmining that at least on v hicle should b slowed or st pp d; and

) actuating at least one v hicl restrictor to imp d th m v ment of at least on f said v hicl s.

26. A method of collision avoidance, comprising the steps of:

a) sensing at least one parameter of at least one vehicle;

b) sensing at least one parameter of at least one pedestrian or at least one train;

c) determining that there is an increased likelihood of a collision involving said at least on vehicle with said at least one pedestrian or said at least one train based on said at least one vehicle parameter and said at least one pedestrian or train parameter;

d) determining that at least one vehicle should be slowed or stopped; and

e) actuating at least one vehicle restrictor to impede the movement of at least one of said vehicles.

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27. The collision avoidance system of claim 1, wherein said parameter is associated with one or more vehicles.

28. The collision avoidance system of claim 1, wherein said at least one trigger sensor is a traffic control means selected from the group comprising traffic light, caution indicator, school bus indicator, bi-directional light, alphanumeric display, pedestrian crosswalk indicator, train signal, traffic sign, traffic gate, traffic barrier, traffic director, traffic timer or combinations thereof.

29. The collision avoidance system of claim 28, wherein said parameter is associated with said traffic control means.

30. The method for collision avoidance of claim 16, wherein said paramet r is associated with on or mor vehicl s.

31. Th method for collision avoidance of claim 16, wherein said param ter is associated with a traffic control m ans.

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32. The method for collision avoidance of claim 31, wherein said traffic control means is selected from the group comprising traffic light, caution indicator, school bus indicator, bi-directional light, alphanumeric display, pedestrian crosswalk indicator, train signal, traffic sign, traffic gate, traffic barrier, traffic director, traffic timer or combinations thereof.